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**AOOS Board Meeting
April 25, 2013
Draft Meeting Summary**

Board Members Present: Ed Page (AK Marine Exchange), James Kendall (BOEM), Paul Gill (USCG), Amy Holman (NOAA), Glenn Sheehan (BASC), John Hilsinger (NPRB), Dave Christie (Sea Grant, by phone for parts of the meeting), Ed Fogels (ADNR), Tara Jones (ASLC, by phone), Larry Hartig (ADEC), Phil Mundy (representing AFSC for Doug DeMaster), Mike Castellini (UAF), Lyman Thorsteinson (USGS for Leslie Holland-Bartels, by phone), Katrina Hoffman (PWSSC/OSRI) and Chris Siddons (representing ADFG for Cora Campbell). Also present were AOOS Executive Director Molly McCammon, Program Managers Darcy Dugan and Ellen Tyler, and Data Manager Rob Bochenek. Dave Easter (IOOS Program Office by phone), Doug Burn (Bering Sea and Aleutian Islands LCC), and Stephanie Moreland (Office of Governor Parnell) observed the meeting.

Ed Page arrived at 10:00 and chaired the meeting.

The Board unanimously approved the meeting summaries from the October 30, 2012 Board meeting (motion by Ed Fogels, second by Larry Hartig) and the April 18, 2013 Executive Committee meeting.

Update from Executive Director

Molly McCammon reported on recent accomplishments, current activities, upcoming events and national issues.

Recent Accomplishments:

- Hosted Arctic Animal Tagging Workshop
- Submitted 2 additional proposals to NSF, 1 to NOAA's Regional Ocean Partnership Program, & proposed Cook Inlet study profiles to BOEM
- Developed Arctic conceptual buildout plan: hosted Arctic Town Hall at Alaska Marine Science Symposium
- Implemented industry data access
- Rolled out new Arctic Portal and Cook Inlet Response Tool (CIRT) and began soliciting user feedback
- Transitioned search catalogues and Model Explorer iPad and iPhone friendly system; Sensor Map will be in June

- PacMars & Sea Ice community meetings held in Barrow, Wainwright, Nome & Kotzebue

Highlights of Current Activities

- Kick off new year of Research (Arctic) Assets map:
 - extend asset inventory and mapping statewide
 - intern recently hired; expect to be contacted soon for project/assets submittal
 - concern about possible duplication of effort with Arctic Observing Viewer at NSF
 - Molly to discuss next week at the Arctic Observing Summit
 - Held a feedback session in January and heard about some ideas for new tools and applications the user community would like to see
- Publicizing Industry Arctic Data:
 - Announcements at AK Marine Science Symposium, e-news, ARCUS, feature article forthcoming
 - Overview and access point: <http://www.aos.org/industry-arctic-data/>
 - Amy Holman shared that the National Weather Service has used over 35,000 individual real-time observations to refine forecasts and that the service is now in the process of getting that refinement process more automated, establishing low-cost ongoing improvements to forecast efforts.
 - Real-Time sensor data is streaming to AOOS sensor map and being archived at NODC during the open season.
 - Because AOOS has not received funding for this service, we are currently just providing the public access point for the historic raw data and soliciting feedback on additional tasks
 - Next task is to get Annex III: hydrographic data; it is anticipated that this will take much longer
- Ocean Portal Framework
 - Arctic Portal was released in January and is integrating more and more data-STAMP project and PacMARS in process
 - Cook Inlet CIRT – refining after initial feedback that it was too busy
 - Both of these are good examples of what we can do now with our data system here at AOOS
 - Next step is to target outreach to agencies and other partners
 - Meeting and subsequent MOA between ERMA and AOOS being used as national model
- ADF&G Data Partnership – gearing up for summer
 - Phil Mundy noted that last year's Chinook Salmon Run was the most successful forecast to date and expressed enthusiasm for connecting oceanographic information to commercial fisheries in the Yukon
- AK Marine Policy Forum – time to survey users, evaluate
- EVOS Gulf Watch Alaska (Long Term Monitoring) and Herring projects:
 - Year 3 synthesis will begin next winter
 - Planning process for this should begin in June
- Developing strategy to implement Arctic build out plan- draft circulated with ARCUS, AON, at AMSS- positive feedback with some suggested additions. Begich's Arctic bill could be funding source for implementation

- Develop modeling strategy: summer workshop
- Sea ice products - user survey of sea ice products
 - IARPC is very interested in sea ice forecasts and products
 - Weather service is very interested in this and eager to help out
 - AOOS is uniquely positioned to do survey more easily than federal agency
- STAMP project: fall workshop
- Wave buoys:
 - Northern Bering Sea to be re-deployed this July
 - Cook Inlet “Bandit” Buoy – community participating in dialog about next steps

National IOOS:

- Lots of progress over the past 10 years! AOOS 10 year anniversary is coming up in 2014
- NFRA: new name & extended mission: IOOS Association
- IOOS summit held Nov. 13-15, 2012; report circulating
- ICOOS Act reauthorization
 - Introducing in May
 - Strong bipartisan support
 - Still working through some issues about federal membership on boards and the liability language.
- Certification pending – expect draft this summer
- Developing national strategies for modeling and for subsurface monitoring
- Coordinating activities on ocean acidification & extreme events

Other National Activities:

- Polar Research Board (PRB)
 - McCammon will continue to be the PRB liaison to the Arctic Oil Spill Study until July
 - McCammon will participate on panel at Emerging Arctic Research Questions committee to meet in Anchorage May 7-8
 - Next PRB meeting will be May 29-30, with a panel on the relationship between SEARCH, IARPC, & other Arctic initiatives
- Ocean Research Advisory Panel
 - Ecosystem Based Management report
 - Next meeting May 21-22
- Arctic Observing Summit: April 29-30, May 1-2 2013
 - Opportunity to make some international connections
 - Two white papers & posters submitted - data management and arctic buildout.
- IARPC plan implementation teams:
 - McCammon is currently on three teams: the Distributed Biological Observatory, sea ice and funders group
- National Climate Assessment: Alaska chapter, how to sustain this type of monitoring and assessment?
- McCammon has been asked to sit on review panel of NOAA’s Arctic Program

Budget Success:

The new NOAA leadership appears to have a greater appreciation of the IOOS system. The three Regions active in Superstorm Sandy got folks interested in better prediction of storm intensity through improved subsurface observations. The message of more efficient government seems to resonate. AOOS FY13 budget received \$103,000 increase, plus \$115,000 for national data management support. And the numbers in the President's FY14 budget look promising.

	FY12 Final	FY 13 Pres Bud	FY 13 Final	FY 14 Pres Bud	FY 14 Final
REGIONAL IOOS	\$23 m	\$29.5 m	\$28.5 m * (26.382 m)	\$34.52 m	TBD
RA Grants	\$17.5 m	\$ 14.5 m	\$ 18.114	\$ 19.52 m	
Surface Currents	\$ 5m	\$ 5 m	\$ 5 m	\$ 5 m	
Tech Innovation		\$ 10 m	\$ 3 m **	\$10 m	
Sensor Validation	\$1 m		\$1 m **		
Model Testbed			\$ 1 m **		
NATIONAL IOOS	\$ 6.5 m	\$6.5m	\$6.5	\$6.5 m	TBD
TOTAL	\$ 29.4 m	\$ 36 m	\$34.9 m	\$41.02 m	TBD

Review of AOOS Governance Structure and Fiscal Sponsor Services:

Molly McCammon reported back to the Board on governance and fiscal responsibility options as requested at the October 2012 Board meeting. McCammon and Board Treasurer Amy Holman interviewed the executive directors of regional associations that had organized as 501 (c) (3)s. Based on those discussions (described in Appendix A?) McCammon and Holman recommended that the board continue to consider incorporating as a non-profit, but take no action until the ICOOS Act is reauthorized with further clarification that federal participation would not be hindered by incorporation.

McCammon also described details of the draft contract being developed between the Alaska SeaLife Center and AOOS for fiscal sponsor support activities. AOOS could choose to go out to competitive bid for these services, but McCammon said the ASLC has been providing excellent support for the past decade at a very reasonable cost, and she recommended AOOS continue with the relationship with the ASLC. The Board agreed that AOOS move forward on a contract clearly delineating the roles and responsibilities of AOOS and the ASLC in terms of fiscal sponsorship and administrative support activities. The Executive Committee will need to approve the final contract.

New AOOS Board Members:

At the request of the Board in October, McCammon developed a recruitment solicitation for new board members, especially ones representing the private sector, tribes, and environmental NGOs. The results of that solicitation were presented to the AOOS Executive Committee. Ed Page reported to the Board on the results and recommendations of the Executive Committee to add three new board members:

- Robert Raye, Shell, Oil and Gas Industry
- Duncan Fields, North Pacific Fishery Management Council Member, Commercial fishing
- Margaret Williams, World Wildlife Fund, environmental NGO

The Board discussed the balance between a larger board - with potentially more champions and collaborators – and a smaller, more agile board. The Board also discussed the merits of having more stakeholders represented on the Board, instead of all agency and research representatives. It was agreed that the three candidates listed above do and will represent the AOOS mission. Interest remains in soliciting a board member who may be able to speak to tribal interests. There was some concern that a tribal representative on the board may lead to issues with gov't to gov't relations, and that a tribal representative may be focused on a particular area instead of statewide; it was clarified that it is really a tribal perspective that the Board is interested in over formal representation, and across all Board members, statewide perspective is important.

The motion to accept these three new Board members was unanimous (motion by Glenn Sheehan, second by Amy Holman).

Overview of New Data Products

Rob Bochenek reported on recent accomplishments, current and upcoming activities.

The Ocean Portal Framework, which supports two new data tools (the Arctic Portal and the Cook Inlet Response Tool) and an updated Model Explorer, has received positive initial feedback, but additional outreach and follow-up are needed to build and serve communities of users. In each instance, the Ocean Portal Framework provides information to specific user groups with a regional, thematic or disciplinary focus. Now that AOOS has this back-end capacity it is relatively straightforward to spin up similar prototypes for additional user groups.

Progress:

1. Search/Catalog Framework Deployed (November 2012)
2. Cook Inlet Response Tool Deployed (Jan 2013)
3. Arctic Portal Deployed (Jan 2013)

4. Model Explorer (March 1st, 2013) – Fully IPAD Compliant
5. Arctic Portal Update (Scheduled for Release Tomorrow)

The Research Workspace facilitates scientific collaboration and integration, so that scientist-produced data can be staged and eventually published into the AOOS system, with the ability to archive to national archives. Originally deployed April 12, 2012, the last six months have been marked by a noticeable increase in use - both in terms of the number of users and the amount of data being uploaded and ingested into the system via users.

Rob walked the Board through a diagram of data flows in and out of the AOOS system and answered questions about crowdsourcing data and potential future efforts. Darcy will be soliciting additional feedback to inform future efforts in the coming months.

Future Efforts

1. Next 6 Months (within this project year)
 - Complete migration of Ocean Portal Systems to HTML 5
 - Improve capabilities of Research Workspace
2. Next Project Year (Still in Planning Phase)
 - Individual Based Services Versus Group Based Services
 - Develop end to end pathways for Ocean Workspace users to publish to National Archives (NOEC) and AOOS data tools

Mike Castellini, School of Fisheries and Ocean Sciences Dean, noted that the UAF research vessel Sikuliaq is coming on line next year, and AOOS should pursue methods for incorporating data collected on this vessel into the AOOS system. Rob was asked to explain the work he is doing for the national IOOS Program Office – implementing standardized SOS services nationally. Phil Mundy, AOOS Data Management Committee chair, noted the AOOS Portal is seeing increasing use and urged development of a tutorial video. Darcy Dugan responded that there are already several short tutorial videos on the site, but AOOS staff would appreciate feedback.

Overview of current FY12 and Proposed FY13 work plans

Molly discussed two ways in which AOOS' funding priorities are maturing. In the past AOOS has devoted almost all new funding to increasing data capacity and products, and very little to overall programmatic support. It may be time for an “overhead” category in the budget to account for the (significant) time that AOOS spends on outreach and coordination of projects for which we are not currently receiving any funds (for example funds from several of our data management contracts go entirely to AXIOM). Data management has been a big focus for AOOS over the past few years, and we can now see the benefits of those investments. Looking to the future, the organization is looking to focus more on increasing observing capacity. Jeremy Mathis gave a PPT presentation of his work on Ocean Acidification; Ed Page presented on AIS and weather observations; Tom Weingartner presented on HF Radars and the Seward Line. These PPTs are included in the meeting materials: <http://www.aos.org/aos-governance/>

The Board reviewed proposed continuing activities and discussed future AOOS activities and priorities as outlined in the following table:

PROPOSED CONTINUING ACTIVITY	PI	COST	BENEFITS
Ocean Acidification Monitoring	UAF: Mathis	\$95,000	<p>What: Maintains OA sampling on the Seward Line and in PWS (\$80k); contributes to a consortium maintaining an OA buoy network (\$15k).</p> <p>When: Seward Line 2X a year; buoys are year-round.</p> <p>Where: Throughout Alaska (GOA, Bering Sea, Beaufort Sea, with 2 new moorings added in Southeast and Kodiak).</p> <p>Benefits: 2013 sampling will complete 9 years of monitoring on the Seward Line, the minimum amount of time necessary to capture definitive changes in ocean carbonate chemistry. Combined with the nearby continuous buoy, these two data streams help scientists to understand the seasonal dynamics of the carbonate chemistry over the shelf and are essential to validating a new OA predictive model for the GOA.</p> <p>Risk: Low. Sufficient funding is in place.</p> <p>Sustainability: State is funding OA network for 3 years, then national program will take over support.</p>
Seward Line	UAF: Hopcroft	\$100,000	<p>What: Contributes to consortium (\$300-400k a year) that supports ship transects along Seward Line that sample for basic physical, biological and chemical oceanographic parameters.</p> <p>When: Twice per year: April/May and September</p> <p>Where: GOA</p> <p>Benefits: Longest multi-disciplinary time series in AK (more than 30 years); data from sampling efforts are accessible to researchers, planners and the public.</p> <p>Risk: may have funding issue if NPRB support ends, although some of zooplankton analysis (major expense) could be delayed. Sustainability: Expensive; needs multiple partners; always vulnerable. Need to display data in way that better reflects stakeholder/management interests.</p>
PWS Obs System	PWSSC: Pegau	\$90,000	<p>What: Funds components of a scaled down version of PWS Observing System initiated by partners in 2005: hydrological model validation (\$45k, but depends on another \$50k for PWS ROMS model); Snotel weather station O&M (\$27k, but stations will soon need to be disbanded or replaced); data recovery from POST array for marine mammal tags (\$13k); and validation of tide station conductivity (\$5k).</p> <p>When: System runs year-round.</p> <p>Where: PWS</p> <p>Benefits: Real-time obs and more accurate forecasts in PWS for</p>

			<p>boaters; short-term and long-term fisheries and ecosystem-based management observations for management; intensive sentinel monitoring for climate trends.</p> <p>Risks: Depends on funding support from multiple partners (OSRI and PWSSC). Have not been able to get interest/funding support from either Coast Guard or Alyeska.</p> <p>Sustainability: AOOS contribution was significantly higher (\$400-500k/year) during PWS demonstration project; much smaller contribution now. Some components now funded by EVOS Long term monitoring program and Herring Research Program.</p>
AIS/Weather stations	MXAK: Page	\$80,000	<p>What: Establish joint Weather/AIS stations at existing AIS locations, and install new stations in remote areas; Disseminate real-time weather and buoy data and marine forecasts to vessels via AIS.</p> <p>When: Ongoing.</p> <p>Where: Tested at sites in Southeast; more remote sites would then be identified with greatest benefit.</p> <p>Benefits: Improved weather forecasts for increased navigation safety for targeted geographic areas; provides way to get emergency/hazard info to vessels.</p> <p>Risk: Obtaining permits from FCC to transmit data over AIS is still an issue.</p> <p>Sustainability: AIS system has tremendous support & multiple partners. Long-term funding is likely.</p>
Oceanographic Obs in Cook Inlet	NOAA: Holderied	\$25,000	<p>What: Conduct monthly oceanographic transects across lower Cook Inlet and Kachemak Bay, leveraging funds from EVOS.</p> <p>When: Monthly when weather permits.</p> <p>Where: Lower Cook Inlet and Kachemak Bay, GOA.</p> <p>Benefits: Data is being used to provide environmental conditions for HAB, OA and intertidal and kelp ecosystem studies (NCCOS, KBRR and NOAA Hollings interns); temperature and salinity profile data used to validate the NOS Cook Inlet circulation model by the NOS Coast Survey. Future: partnership with NCOS on HABs and OA impacts on shellfish depletions; possible partnership with BOEM for Cook Inlet environmental assessments; long-term changes in temperature, precipitation, snow & glacier melt, and upwelling in Kachemak Bay waters for ecological forecasts (scenario testing) of how climate change will affect coastal waters and habitats.</p> <p>Risk: high likelihood of success, although personnel resources are limited.</p> <p>Sustainability: EVOS partnership long-term; good chance of getting BOEM funding. NOAA funding for Kasitsna Bay Lab is vulnerable.</p>
HF Radar operations	UAF:	\$156,00	What: Operations and maintenance of 3 long-range HF radar

	Wein-gartner	0	<p>sites originally funded by BOEM.</p> <p>When: Annually during open water season.</p> <p>Where: Barrow, Wainwright and Point Lay in Chukchi Sea.</p> <p>Benefits: Active collaboration with oil spill trajectory modelers and emergency response; understanding processes that control ocean circulation and temperature and salinity changes in Alaska's continental shelves. Key data for ROMS ocean circulation model and potential operational circulation model.</p> <p>Risk: Partnership support depends on oil & gas industry development in region. Expensive to maintain because of remoteness.</p> <p>Sustainability: See above. Priority of national IOOS office.</p>
Sea Ice Atlas	IARC: Walsh/ Trainor	\$6,000	<p>What: Annual update of historical atlas of sea ice grids and accompanying digital maps of sea ice concentration (tenths of ice coverage) and web portal</p> <p>When: update would occur annually 2X</p> <p>Where: Atlas includes data for Bering, Chukchi and Beaufort Seas, including Bering Strait, Norton Sound, Cook Inlet and other coastal inlets.</p> <p>Benefits: Provides quick and easy visually appealing information on historical sea ice to policy/decision makers and researchers.</p> <p>Risk: None. Project nearly complete.</p> <p>Sustainability: AOOS funded this project last 2 years (\$250k total) and now this low \$6K O&M tail is likely to be ongoing.</p>
Data Mgmt Services	Axiom: Rob Bochenek	\$540,000+ \$114,900 for national program services	<p>What: Supports core AOOS data portal & products. Focus of past 3 years has been on development of primary applications: real-time sensors, model & remote sensing explorer; integrated GIS data; research workspace; archiving, etc. This year focus will be to maintain these and develop more tailored stakeholder products, including myAOOS.</p> <p>When: Ongoing.</p> <p>Where: Serves entire state, although emphasis has been on Arctic and southcentral.</p> <p>Benefits: Legacy project for AOOS since beginning. Considered to be AOOS core. Widely used. Highly visible. Highly leveraged.</p> <p>Risk: That other agencies/entities will copy and take on AOOS functions as "competition". Done under contract – always possible that contractor is bought out or leaves for whatever reason.</p> <p>Sustainability: As long as considered core project, and continue to be successful in leveraging with other funding sources, should be sustainable.</p>

The Board agreed that all of the activities listed above are consistent with the mission of the organization; and the Board applauded efforts to ensure that resources are devoted to ensure adequate outreach to stakeholders, agencies and potential AOOS partners. From a broad

perspective, AOOS's primary function is facilitating increased observations and serving as a broker for ocean observations. Modeling efforts, including the proposed modeling testbed, are important to the mission of AOOS both because modelers are key users of ocean observations and because it is not possible to have comprehensive observational coverage; however, the current investments AOOS is making in modeling efforts, though significant, do not seem to be going very far. Therefore, the Board directed that money spent on modeling efforts be scaled back this year and a working group organized to develop criteria for future AOOS funding for modeling activities, including the possibility of a modeling testbed, in order to more clearly articulate AOOS' modeling strategy in the future.

A motion was offered and passed unanimously to approve the above continuing activities (motion by Ed Fogels, second by Amy Holman). A motion was offered (motion by Ed Fogels, second by Jim Kendall) and passed unanimously to approve an amended proposed list of new activities including:

- \$50,000 to continue supporting ocean circulation (ROMS) model for PWS
- \$100,000 for an ocean acidification orecast for Gulf of Alaska, contingent on further peer review
- \$120,000 towards a Northeast Chukchi Sea Mooring, with the remaining \$100,000 to be funded next year
- \$80,000 for an Arctic Acoustic Call Library
- \$35,500 for Wave Sensors in the Beaufort;
- \$35,000 for Port Heiden tide gauge; and
- \$20,000 for Digital Repository for Coastal Elevation Profiles

The meeting adjourned at 4 pm. The next Board meeting will be held in the fall.